KERAMIC STUDIO

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PROFITABLE as well as a pleasant summer pastime for idle sunny hours, is the making of blue print silhouettes of flowers, leaves, grasses and insects. We give some of these in this number and they illustrate very well the points to be gained: a big view of things, the losing of detail and unnecessary shading, a clearer insight into the decorative lines and outlines of objects. From these photographic studies it will be an easy step to a broad conventionalization.

The flowers are laid on blue print paper, placed on a board and covered with glass, a few trials will have to be made to get just the right exposure. Be careful in arranging the study that there are not too many leaves or flowers as the result will be confusion. Try and *compose* a panel picture by the position of flowers and stems on the rectangle of paper. A collection of these prints in a portfolio will be found of great value in your winter work.

✣

We regret to announce that the article on color by Mr. Hugo Froehlich which was to have been given in June KERAMIC STUDIO is unavoidably postponed until the July issue. The Class Room criticisms on Jack-in-the-Pulpit will be given in August. The Dandelion will be the subject for September, and for October, the Narcissus; several drawings of the latter flower are given in this issue.

✣

We congratulate the New York Society of Keramic Arts on having selected Mrs. Anna B. Leonard for president this year and trust the society will continue to re-elect her for some time to come. We shall now look for the progressive movement that we have preached and prayed for these many years.

✣

A new book on "Principles of Design," by Batchelder, has just been placed upon our study table, it has just been gotten out by the "Inland Printer" of Chicago. It is beautifully printed. The general plan of instruction is similar to that of Mr. Dow and Mr. Froehlich and the book is copiously illustrated in color and half-tone and is worth including in one's study library.

NASTURTIUMS—(Supplement)

Henrietta Barclay Paist

COLORS—Albert Yellow, Yellow Ochre, Yellow Brown, (Dresden); Dark Brown, Deep Red Brown, Ruby Purple, Brown Green, Dark Green, Moss Green, J., Carnation No. 1, (Lacroix); Blood Red, (Bischoff), or ½ Ruby mixed with ¼ Deep Red Brown; Copenhagen, (Bischoff or Fry); White Rose, (Bischoff); Russian Green, (Bischoff or Fry).

Use Deep Red Brown, Blood Red, Brown Green, Dark Green, Copenhagen and Dark Brown as modeling colors; Yellow Ochre, Yellow Brown, Albert Yellow, Carnation, Ruby Purple and Moss Green for glazing (second fire.) The darkest red flowers are modeled with Blood Red, glazed with Ruby and the modeling strengthened when necessary with Blood Red and even a touch of Dark Brown or Black. The carnation or yellow red blossoms are first modeled with Deep Red Brown, the veining in Blood Red and glazed with Carnation. The pure yellow flowers are modeled with White Rose, glazing with Yellow.

The background is painted with Brown Green, Dark Green and Dark Brown in the strongest parts, blending into Yellow Brown and Yellow: In the cooler tones, Russian Green and Copenhagen blend gradually to the warmer tones by glazing the other colors over and so drawing together into a harmonious whole.

LEAGUE NOTES

THE annual meeting and triennial election of officers of the National League of Mineral Painters was held on May 5 at the National Arts Club in New York. After the reading of the reports the following officers were unanimously elected for a term of three years.:

President, Mrs. B. B. Vesey, Chicago; Vice-President, Miss I. C. Failing, Denver; Rec. Secretary, Miss M. E. Iglehart, Chicago; Cor. Secretary, Mrs. G. P. McMurtry, Chicago; Treasurer, Mrs. C. A. Randall, Chicago.

The next order of business was the election of an Advisory Board of six to serve for one year. The following were elected:

Marshal Fry, New York; Mrs. Worth Osgood, Brookyln; Miss Boyd, Pittsburgh; Mrs. Davis, Boston; Mrs. Beachey, Chicago; Mrs. Smith, Newark.

The Treasurer gave a most gratifying report, being able to hand over a balance of $415.08. During the three years $2920.46 have passed through her hands, of which $1487.64 represented the cost of the Pan-American, and the two traveling exhibitions.

Mrs. Vesey, the newly elected President, was present, and we believe all the members who had the pleasure of meeting her felt that the League was to be congratulated. We wish to bespeak for the new board which enters so auspiciously on this new term, the loyalty and help of every club and individual member.

As the chairman of the various committees could not be elected until the meeting in Chicago, there was more or less informal discussion about the next course of study, and the consequent exhibition which are the matters of most vital interest to the clubs. One proposition which seemed to meet with considerable favor, was that the next exhibition should consist of two parts, one on educational lines, carrying out in a progressive way the principles of the past comparative exhibitions; and another, without restrictions, excepting perhaps as to size, limiting each club to a small number of pieces, proportionate to the membership. It was thought this variety would add interest to the exhibition, while also giving an opportunity to those who might feel that the limitations of the study course were too narrow.

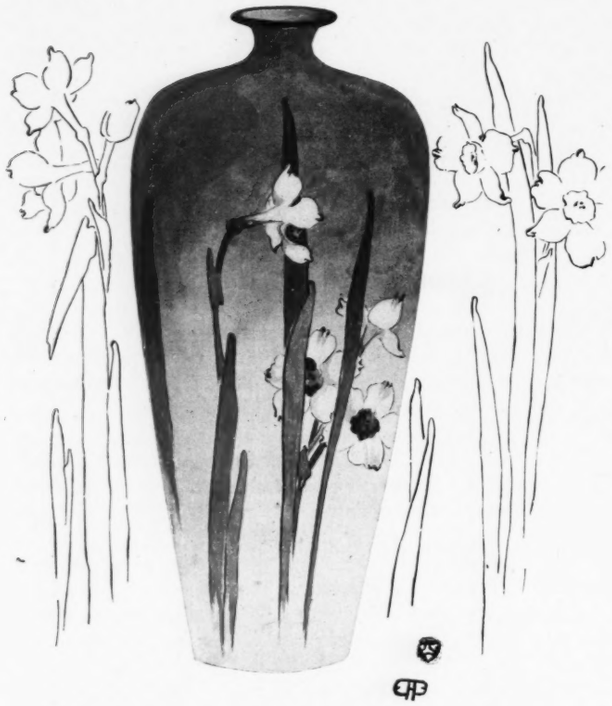
On the other hand, some felt that the restrictions give a valuable mental exercise, and should be looked upon from that point of view. It has been thought best to present these suggestions, thus hoping to draw out more, and we are sure the new board of officers will gladly receive and consider all, and

it is only by the fullest knowledge of what the clubs feel is wanted that they will be able to eliminate the least useful and decide upon what will be of the greatest number.

IDA A. JOHNSON.

MRS. B. B. VESEY, President,
6228 Wabash Ave., Chicago.

MRS. G. P. McMURTRY, Cor. Sec.,
6927 Normal Ave., Chicago.



CHINESE LILY

Emma Ervin

THE Chinese lily as we have it in America is generally grown in a shallow bowl of water with a few pebbles in the bottom. The bulbs are imported every year, as they never bloom but once, and the growth is most interesting. After being placed in water it will flower in a month's time, dainty, fragrant flowers, very much like our narcissus in form, only smaller and several flowers from one stem. The leaves are straight and flat, and with tall white flowers form a most pleasing arrangement.

VASE IN CHINESE LILY

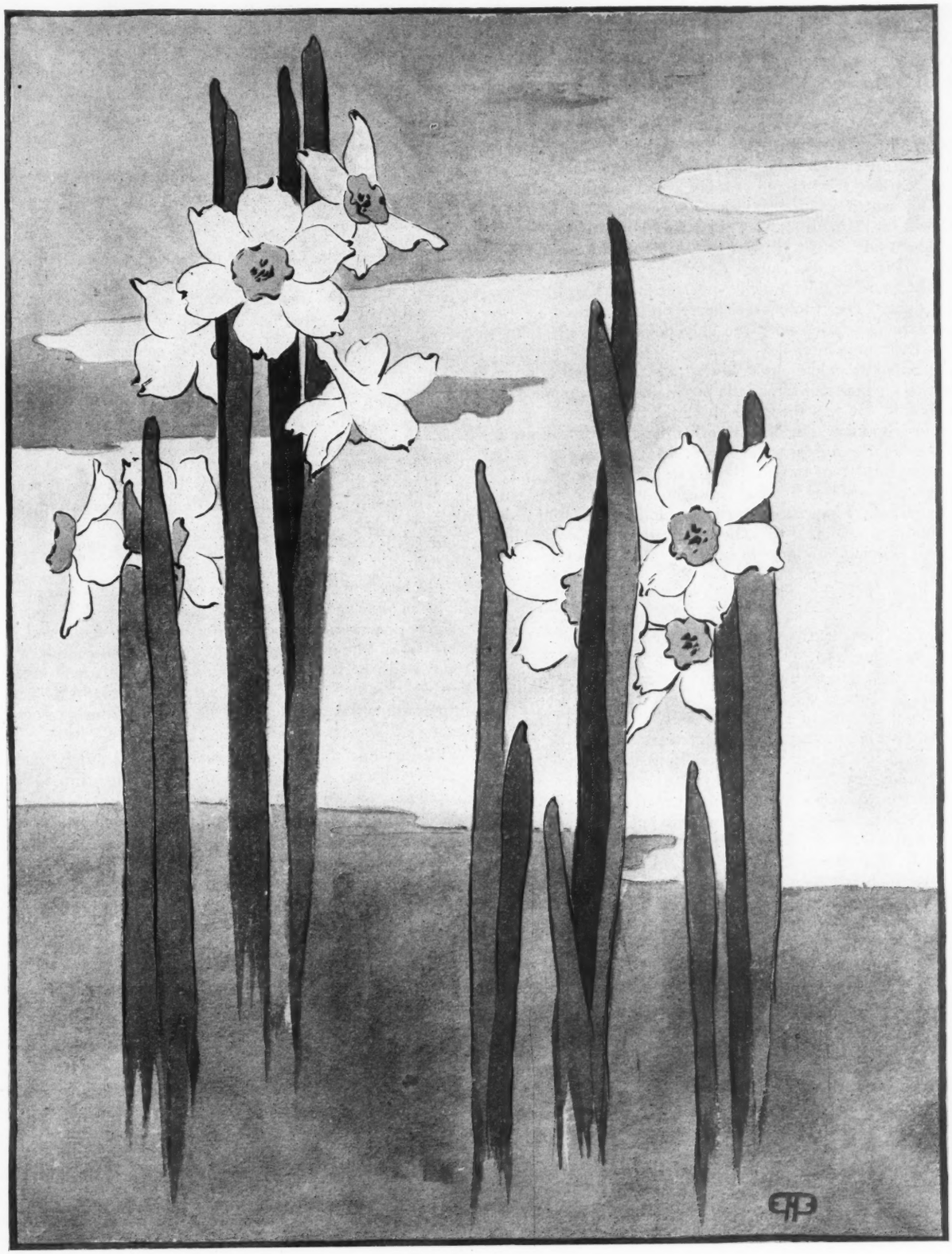
For the most satisfactory results I would suggest that the outlining be done first, very carefully, with outlining black. Then after firing tint with dark green No. 7, allowing it to be light grey at the bottom and darkest at the top. Paint the leaves with olive and dark green. The flowers are white with yellow centers and may be shaded very little if desired.

NARCISSUS

Mrs. J. F. Bernies

FLOWERS, white, shaded with a greenish grey; centers, pale yellow in the edge of reddish brown. Leaves, blueish green in high lights, warmer green in other places. Background of soft grey tones.

NARCISSUS—MRS. J. F. BERNIES



DECORATIVE STUDY OF CHINESE LILY—EMMA A. ERVIN

GRAND FEU CERAMICS

X—FIRING—Neutral, Oxidising, Reducing

Taxile Doat

(CONTINUED)

THE regulation of the firing may be done in three different ways: *ordinary* or *neutral*, *oxidising* and *reducing*. Neutral firing has always and is still used by all porcelain manufacturers. It is the "go as you please" of empirics. It is easy to understand that if one throws wood into the fire mouths, little at first, more towards the end, the point of firing of kaolinic matter will sooner or later be reached. At Limoges, in Saxony, at Sèvres and everywhere that porcelain was made, the main result sought for was the brilliant whiteness of the ware. (This whiteness caused the public to prefer porcelain to earthenware against which porcelain makers had made a bitter fight. The whiter the porcelain the better it was adapted to decoration with the only palette known at first, that of the muffle fire.)

Manufacturers had observed that when, during the firing, there was an excess of smoke the porcelain had an unpleasant greyish tint. It was therefore absolutely necessary to avoid this smoking of the kiln. On the other hand the time of firing, with the labor and expense involved, always seemed too long, and it was important to push the fire so as to reach the end as rapidly as possible. Tossed between these two extremes, porcelain makers had succeeded in regulating the firing in an abnormal and empirical way, by selecting the wood, dividing the feeds, forcing into large fire mouths all the fuel they could stand, but at the same time airing the kiln everywhere with strong drafts, as if it was burning in the open air, with a violent wind. And as with this excess of fuel, the live coal accumulated in the fire mouths, and formed smoke, every two hours they were cleaned out. This severe operation, the taking out of the coal which had accumulated and obstructed the openings, scorched the skin of the firers, but they did the work bravely, as this coal was one of their perquisites. As soon as the fire mouths were clean, they became active again and the smoke disappeared to give place to the oxidising atmosphere. With this regular cleaning of the fire mouths, porcelain makers succeeded in obtaining very pure white after 30 to 34 hours firing. The oxidising action was strong but not complete, as it was active only at times. When the palette of *pates sur pates* was created at Sèvres, the cleaning of the coal was practiced regularly to preserve the oxidising atmosphere so necessary to the development of certain colors, such as the yellows of uranium, the pinks, mauves, turquoise and blacks which owe their brilliancy to this atmosphere. As the oxidation was insufficient this was remedied by the creation of air drafts through fire brick tubes X passing through the walls of the kiln (Fig. 49, p. 228, Feb. 1904). These tubes conveyed an excess of oxygen to the inside of the saggers where the colors were, which certainly, when it worked well, improved the tones wonderfully. But success depended on the stability of these tubes. If in their moving surroundings, they became displaced by a movement of the bungs or were obstructed by some unexpected cause, the flow of oxygen being imperfect, the colors did not come out with all their brilliancy, the decoration remained grey and dirty. I have seen many of these finely decorated pieces on which the air draft had failed to act.

The air draft, led into the channel at the bottom of the bung, follows it without any break to the top, ending outside after crossing the vault of the firing chamber. The points of entrance and exit of the air being fixed, at each firing these air passages must be carried between the bungs in the same way.

This empirical firing could not stand the examination of serious and learned minds, trained in the logic of exact sciences. The Sèvres chemists, applying to ceramics the scientific processes which were used in metallurgy, solved the question of a purely oxidising or a purely reducing atmosphere by the relation of the sections of the chimney to the fire mouths.

Oxidising (Fig. 89)—If a *narrow fire mouth* corresponds to a *large opening* for the exit of the flame, the fuel is completely consumed under the action of the strong draft which the narrow fire mouth produces. As wood consumes only the amount of air necessary for its complete combustion, there rushes into the kiln an excess of air which devours the unburnt gases which may have been introduced. The atmosphere of the kiln is then called *oxidising*. As it is necessary to constantly increase the feeding of fuel in order to reach the high temperatures for the firing of porcelain, one has to face the following problem: the temperature will be lowered if, when feeding little wood, too much air is left to penetrate the kiln, or the oxidising atmosphere will be lost, if with an excess of fuel the smoke invades the firing chamber. There is a happy medium which practice alone will teach. It would be impossible to finish a firing if one tried to have an absolutely oxidising atmosphere all the time, while the contents of the kiln would be irreparably damaged if the reducing atmosphere was kept from beginning to end. The characteristics of an oxidising fire are, inside of the kiln, a brilliant white light, without any trace of flame or smoke, and outside, the absence of flame on top of the chimney. When a rush of flames is produced by the fall of a burning load of wood in the fire mouth, these flames should be blueish.

During an oxidising fire, the neutral firing which allows a rapid increase of heat, is adopted until the fall of cone 013, when it is necessary to begin oxidising, because unburnt gases which would be deposited on the pieces, would produce with the colors a pyrochemical combination which would injure or destroy them. It will be easily imagined that this kind of firing is much slower than the neutral or reducing ones. It lasts 3 or 4 hours longer.

Crystalline glazes are obtained only in a purely oxidising fire. Oxidising firing gives a slightly ivory tint to white porcelain.

Reducing (Fig. 90)—If on the contrary to oxidising, a *large fire mouth* corresponds to a *narrow opening* for the exit of the flame, the draft is insufficient and the wood which has accumulated in the fire mouth does not burn completely; carbonic oxide and carburets of hydrogen escape from it, and in the shape of a sooty smoke whirl in the kiln, mixed with the flame which then takes a reddish tint. This is the reducing atmosphere. It gives a greyish tint to porcelain. It would be dangerous to maintain the flame in this condition of saturation with smoke during the whole firing. It is necessary to keep this atmosphere only up to the fall of cone 06 inclusively. In this case the unburnt gases help the colors. They are deposited on and combined with them at the time of the fusion of the glaze. As soon as this vitrification is obtained, the fall of cone 06 occuring at about $\frac{3}{4}$ of the time of firing, one must change to oxidising to clean the kiln of all the carburets, which cannot have a good action any longer. If the reduction was continued much longer, the colors would lose their brilliancy and become blackish.

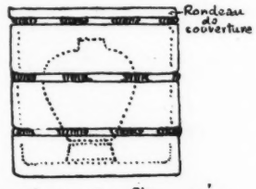
One will understand how important it is to handle well these two firings, the same colors developing in an entirely different way according to the condition of the atmosphere. So celadon of iron, a delicate jade green in reducing, remains greyish in oxidising. Red of copper, of crimson color in reducing, becomes opale or spotted green in oxidising. Uranium

is black in reducing, yellow in oxidising, etc. The limited space for these articles does not allow me to give the scientific reasons for these pyrochemical combinations.

Through the handling of the chimney damper and of the plaques on the fire mouths (Fig. 89 and 90), it will be easy to put into practice the theory which I have just explained. These fire mouth plaques are of the same material as the saggers but fired in the hottest part of the kiln. They must have the same length as the hopper of the fire mouth, and be half as broad as long.

The characteristics of a reducing atmosphere are, inside, flame striated with waves of soot which dim the view, and outside, on top of the chimney, a cap of red and black smoke, formed by the unburnt gases.

It is only in the reducing atmosphere that the fine flammé reds are produced. Their development is made easier by the arrangement of saggers. Instead of being entirely cemented with lute, openings from $\frac{3}{4}$ of an inch to 1 inch are left in the wads of lute which hold the saggers together, so that the flame will penetrate the latter and deposit carburets on the cupric glaze (Fig. 81). It is not necessary to saturate the kiln with smoke to obtain fine reds. A light cloud of smoke maintained up to the fall of cone 06 will do . The name of *flammés* has been given to these pieces because, contrary to other pieces, they are subject to the flame during the firing. Reducing firings are from 3 to 4 hours shorter than oxidising, but neither requires the cleaning of live coal out of the fire mouth, the latter being necessary only in neutral firing. When the coal has accumulated in the fire mouth, while reducing, it is left to burn out, the feeding of fuel being diminished until then.



Encastage des flammés. Les serces sont incomplètement lutées. Des intervalles sont ménagés pour laisser pénétrer la flamme. fig. 81

By faithfully following these instructions, every detail of which has its importance, ceramists will be able to obtain from the fire the finest crimson reds as well as the most delightfully frosty crystalline glazes.

Those who have a baking chamber in their kiln will not need to give special attention to the baking which will be done while firing. But those who, like myself, have no baking chamber, will proceed as is done for an ordinary firing, without however cementing the saggers with lute. If they want a light baking, they will stop when cone 013 is beginning to curb; if they need a strong hardening, they will stop when cone 013 has completely fallen.

As a conclusion I will call the attention of firers to the following primordial points: to obtain a reducing atmosphere, the fuel must be accumulated in the fire mouth, and the exit of the flame must be checked as much as possible. Inversely, for an oxidising atmosphere, just enough fuel must be fed to the fire mouth to allow the progressive increase of the heat and the flame must have perfect freedom of exit.

It is necessary also to adopt a rational feeding of the fuel, and when one of the fire mouths is choked, not to take the coal out, but to even it up, or temporarily diminish the feed, which will give the fire mouth time to absorb its excess of live coal.

XI—DRAWING THE KILN

THE drawing of the kiln is the time of great excitement for ceramists. The fever which has taken hold of them during the preparation of art pieces grows with the progress of the work to reach its climax during the drawing which is the best lesson for future work as well as a succession of childish joys and disappointments. When the firing is finished the kiln is left to cool off during four days. The fourth day the stoppers of the three spyholes are withdrawn, also the stopper A for circulation of air. (Fig. 50, p. 228, Feb. 1904). The covers of the fire mouths are loosened and lifted; the chimney damper alone is kept closed to avoid a draft which might affect the pieces. The fifth day the doors are loosened and the sand between them gathered. This sand will be screened for future use.

Fig. 92

I generally take the pieces out of the kiln eight days after firing. As each piece is taken out, the placing material is put in order. Broken saggers are temporarily tied with twine (Fig. 69), so that their pieces will not be lost and a few days later this material is thoroughly overhauled. It is cleaned with an instrument called a dressing iron (Fig. 92), the three sharper angles and the angular end of which allow one to remove the vitrified scoriae which may adhere to the saggers.

Most of the pieces of placing material are broken during the firing, but a large part can be used again, as for instance when in saggers, the cracks extend only from the heel to the center, and when, in rings, the cracks are distant from each other. Bats broken in two can be used again, but when broken in three, they should be thrown away.

Whatever care has been taken of the casting of bats, many get out of shape and they should be made true so that the porcelains will always rest on a flat surface. The grinding of a bat is the operation which has for object to remove all inequalities and hollows. To do this, two bats are rubbed against each other, while the two faces in contact are from time to time sprinkled with grès sand.

Although the white glaze remains where it has been placed, colored glazes which are more fusible, are apt to constantly overflow. To overcome this defect, small columns are used for supports, as I have explained in the article on placing. After firing, these columns are stuck to the piece, the glaze having flowed over, and they must be detached. If they have been strongly washed with the infusible wash, a sharp blow with a wooden hammer will be sufficient to detach them, and nothing remains to do but to wear and polish the foot of the piece by rubbing it on a steel disc sprinkled with wet grès powder; or it will be easy to find a wheel to do this work, the faience makers using the same instrument.* As I have no

*Carborundum wheels made specially for pottery work are sold in this country. Care should be taken to buy the proper size of the carborundum grain.—(Ed.)

power, I polish my pieces on a wheel resting on a wooden support. This operation requires some patience.

I have said elsewhere that the pieces of placing material were violently cracked and broken at each firing. This causes pieces of fire bricks, called *grains*, to get stuck to the fused glaze. These grains making flaws in the ware must be removed with a carborundum wheel. It is useless to speak of this work which is the same for porcelain as for faience.

Sometimes cracks occur on glazed pieces. If the crack is not too deep, it is possible to fill it. For this filling, pulverized biscuit of hard porcelain is mixed with gum arabic. This paste is worked with an ivory or wood spatula and forced into the crack. After it has dried it is filled again, then it is covered with gummed glaze and refired in the same conditions as before. With colored glazes, cracks disappear.

Unglazed biscuit never being refired, the cracks must be filled in the same manner, but without refiring. The biscuit flour is then mixed not with gum, but with silicate of soda.

Porcelain has the great advantage of standing 3 or 4 firings without much risk, and even of acquiring more brilliancy at each refiring. It is then easy to repair pieces on which have appeared grains, thinness of glaze, cracks, blisters and even raising of paste, as is often the case for flammé reds of copper when their firing has not been done properly. I have seen Sèvres pieces refired three times. Chaplet has shown me some fine flammé reds obtained at the sixth firing, and I have in my collection ceramics which have stood four firings.

As a rule grès does not stand a refiring well. All the trials I have made with this material have been disappointing. However, when the grès piece has been fired without glaze the first time, in biscuit, one may, with a chance of success, refire it with glaze, but in both cases the firing should be oxidising. It is on a second firing, the first of which is made in biscuit, that crystalline glazes on grès are obtained. Grès will not stand a second reducing fire. On the contrary porcelain behaves well in many refirings with both atmospheres. But one point must be borne in mind. In order that the refired piece may change its appearance, it must reach a higher temperature than it had in the first firing; its modification by a new pyrochemical combination is possible only on that condition. If it has been fired at the bottom of the kiln it must be refired on top (the hottest part), or if it has been fired on top, it must be refired with a new coat of glaze. In this case it is the new glaze which changes the appearance of the vase.

Pieces decorated with mat or bright glazes can be modified, but those which have been decorated with pâtes sur pâtes will keep forever the effect acquired in the first firing. So the *body* colored yellow by uranium, which has turned black on first firing through lack of oxygen, will never again become yellow; its combination in black is permanent; but, the cupric *glaze* which has turned green through lack of reduction, will become red on its second passage through a reducing fire.

It is evident that when a piece is refired, one must give it supports and columns which have been fired, as there will be no more shrinkage.

After the firing chamber is emptied, the baking chamber is opened. There pieces have been placed in saggers without lute and without supports or bats. The temperature is comparatively low, but this baking is sufficient to give to pieces the solidity which makes their handling easy, while it increases the porosity necessary for a good glazing. All the placing material must pass through the baking chamber before being fired. It is easy to understand that a raw sagger could not stand any load, and that being somewhat larger than the fired one, it could not be placed on top of it.

BLUE PRINTS OF GRASSES AND FLOWERS

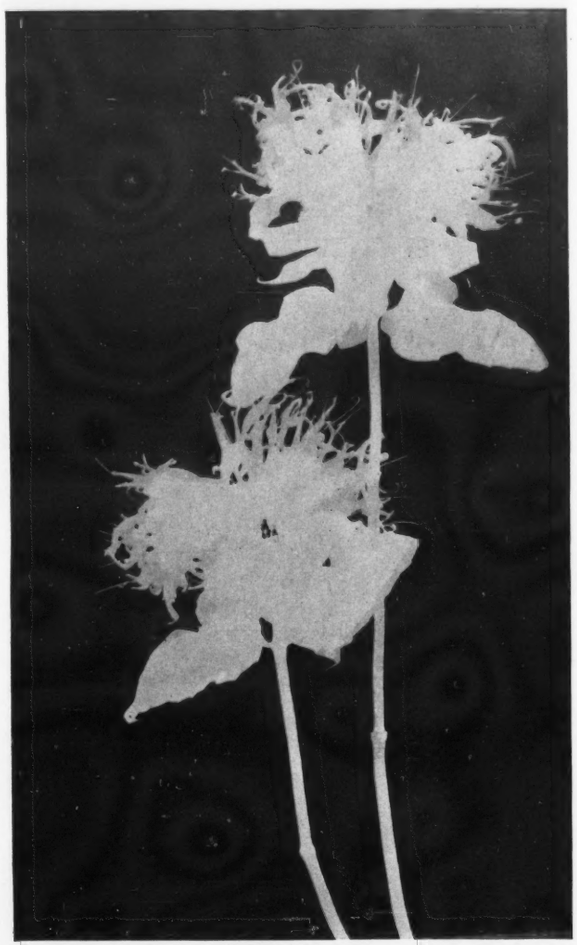
[By MARY EVANS FRANCIS in "Good Housekeeping"]

THESE prints are easily made wherever sunlight and water are abundant. Both paper and printing frames may be prepared at home, as the blue paper is well known to everyone who uses a camera. Prints of grass must be at least a foot long and should be wide enough to show the plant without cramping leaf or stem. For paper there is nothing better than heavy white wrapping paper, purchased in large sheets, and cut into strips of suitable width. To insure clear prints it is better to use it freshly prepared, and, as the chemical solution is easily applied, it is slight trouble to finish up a few sheets at a time. The chemicals used are sixty grains citrate of iron and ammonia, forty grains red prussiate of potash. Each should be dissolved in one-half ounce of water, but the two solutions must be kept separate until a few moments before applying them to the paper. Then pour the two solutions together, and in a dimly lighted room lay the strips of paper on the floor and wash the mixture thinly and evenly over them with a camel's hair brush. The wet strips should be hung in a dark closet and left until thoroughly dry, when they may be cut into shorter pieces and laid away where they will be sheltered from light and moisture.

The printing frame is of exceedingly simple construction. For a foundation, which must, of course, be slightly larger than the size of the print desired, a thin wooden board, such as may be bought at any picture framer's, is used. This should be covered smoothly with a pad of three layers of flannel, to insure an even pressure on all parts of the plant. When the grass is gathered and ready for printing, the prepared paper is laid, face up, on this frame and the grass placed carefully upon it, letting stem and leaf and head lie naturally and gracefully so that there will be no appearance of stiffness in the finished print. Directly upon the grass place a sheet of ordinary window glass, the size of the frame, and clamp it tightly to the foundation board, using spring acting clothespins. It will be found advantageous for the collector to prepare several frames, so that a number of prints may be made at the same time.

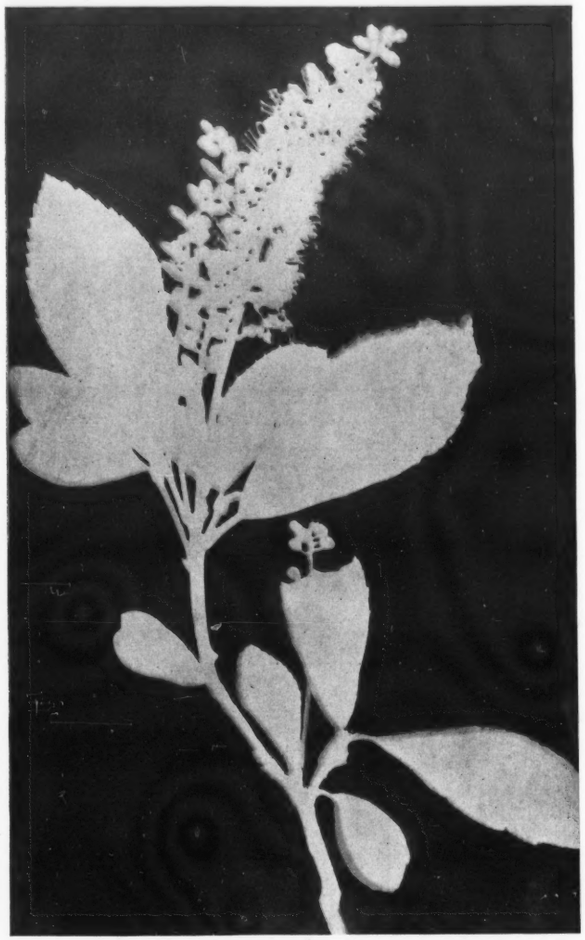
Preparations for printing must not be made in a strong light, but as soon as the glass is on the frame the whole should be placed in the direct sunlight. The time of printing varies, though ten to twenty minutes is usually sufficient to produce a clear white print upon a background of dull blue. Longer printing shades the white impression made by the grass, and faintly outlines the delicate veining. After exposure the print is washed for twenty minutes, either in running water or in several changes of water. During this process it must be kept face down, but on being taken out it is placed face up again in the sunlight to dry.

DESIGN FOR BELT BUCKLE



Horse-Mint or Balm

Pink



Clethra or Sweet Pepperbush or Alder

BLUE PRINTS OF FLOWERS—LETA HORLOCKER

WISTERIA—EDNA GAMBLE

NARCISSUS

Carrie E. Williams

AFTER sketching in the design commence by laying in the background at the top, using Banding Blue, Shading Green and a little Black, blending into Ashes of roses, Lavender glaze and to Lemon Yellow near the flowers. Paint the flowers with Lemon Yellow, Copenhagen Grey and Violet, being careful to bring out the little cup in center which is the characteristic of the flower. For leaves use Baby Blue, Yellow green, Shading Green and a little Black. Continue the background with Yellow Green, Violet, Shading Green, Brown Green and Purple Black. Dust with the same colors used in background, carrying some of the color over the shadow flowers. Use same colors for strengthening in second painting.

ANCIENT VASES

DURING the excavation of the foundations of Emperor Domitian's equestrian statue, five vases in a perfect state of preservation, were found under a huge stone. The largest, of red terra cotta exquisitely fluted, was lying on its side in the center. The others, of which one bears the double spirals that are characteristic of the eighth century before Christ, were standing upright close to the western side with the handles pointing to the wall.

This particular position leads archaeologists to think that they were placed there by the Pontifex Maximus, who, at a religious ceremony, would stand facing the east, and would naturally place the vases at the side at the opening nearest to himself.

In the large terra cotta vase a piece of quartz was found, on which some natural gold apparently had been soldered.

Though this discovery is of great interest as giving actual evidence of the inauguration of a monument during the first century of the empire, Signor Boni, the director of the excavations, considers that it has a much deeper significance. The vases are identical in shape, color, and material with those he found in the tombs of the time of Romulus in the Forum.

This similarity at so great a distance of time he considers as proof of the continuance through the centuries of the religious ritual which had its inception at the foundation of Rome.—*Chicago Inter-Ocean.*

The Springfield Keramic Club held their May meeting with Mrs. Austin H. Pease, devoting the afternoon to a study of old china—the members bringing pieces which were used to illustrate the topic of the afternoon. Miss Effie Shaw, Chairman of the Topic Committee, gave a most interesting talk on "China Collecting in America," and showed several pieces from her own collection, which includes several exceedingly rare pieces. Mrs. A. E. H. Pillsbury had a paper on "Old Blue" which was most instructive. This was the last regular meeting until fall. The annual tea of the club will be held in June.

WISTERIA DESIGN FOR PITCHER

Russell Goodwin

Wisteria, Yellow Brown lustre; leaves and outlines, Gold; design in background in varying tones of soft Grey.

PUNCH BOWL IN GRAPES—

IN this design the purple, red and white grapes are combined. The red bunch in central cluster is painted in Pompadour, Ruby Purple, Yellow Brown and Banding Blue. A mixture of Pompadour, Ruby Purple, Banding Blue and a little Brunswick Black is used in grapes in deepest shadow and in the very darkest tones in others. In the second painting the Banding Blue and Black should be omitted.

The bunch under the leaves to the left of central group should be laid in in a mixture of Banding Blue, Ruby Purple and Brunswick Black; a very thin wash of Banding Blue being drawn over the lightest tones to represent the "bloom." In painting grapes it is extremely important to keep them clear and transparent with decided light and shade. Lemon Yellow, Yellow Green, Brown Green, Pompadour and Shading Green

APES—JEANNE M. STEWART

are used in the white bunch to the extreme left; over these colors delicate grey shadows are thrown in second or third firings.

The usual greens may be used in the leaves with exception of the central prominent leaf which should be painted in the yellow and brown tones. While the lightest wash of Yellow Brown is still open, the darker tones of Pompadour and Chestnut Brown may be worked in, giving a soft but crinkled effect to the leaf. Brown green is also used in shading and a bright touch of Egg Yellow and Yellow Red is effectual. The background is grey in general effect, in which Stewart's Grey is used, shading to Grey and Shading Green. Or, the greens alone may be used, shading from Ivory Yellow to Yellow Green and Shading Green, with Shading Green and Brown Green at the base which should be very dark, and dusted in last painting.

TEA SET—FLORENCE E. SEGSWORTH

To be executed in green and gold.

TILE—ROCKWOOD MOULTON

Tint tile with yellow ochre to which has been added a touch of black and pompadour red, then fire. For the second fire carry out the design in royal or moss green with a touch of black; the eight small spaces in corners and around center to be washed in with pompadour to which has been added a touch of black.

KOREAN KERAMICS

Randolph I. Geare

THE Land of Morning Calm, as Koreans often call their native country, was for many centuries noted for the high class of its art productions. Persia and Arabia probably contributed to its celebrity in this direction, and doubtless those countries derived in turn inspiration from the artists of the little kingdom. Indeed the artworkers of Persia and Arabia are said to bear unmistakable signs of Korean originality and skill. At the time when Korea ceased to be called "Korai"—a little more than five hundred years ago—the potter's art still flourished there. But later, when "Korai" had been changed to "Cho-sen," and the people of the new capital, Seoul, had become embroiled in a bitter war with the inhabitants of the old capital, Song-do, the manufacture of pottery declined; and when, towards the end of the sixteenth century (at the close of the Japanese invasion of Korea, 1592–1597) whole colonies of potters and porcelain workers were taken to the victors' home, Korean art ceased to exist in Korea, save as a mere remnant of its former excellence. By slow degrees, however, the manufacture of pottery and porcelain was renewed, but the choicest Korean skill had been transplanted to Japan.

Comparatively little is known of the subsequent products of Korea's factories until somewhat over a quarter of a century ago, when the little kingdom was released from her long period of vassalage to Japan, and was at last recognized as an independent and sovereign nation.

A few years later, in 1882, largely through the energies of Commodore Shufeldt, Korea opened her ports to the United States of America, and in the following year a large number of Korean pottery objects, now on exhibition in the National Museum at Washington, were collected by the late Mr. P. L. Jouy and others. These threw a new light on the ancient keramic industry of Korea, and also furnished valuable information regarding the kinds of pottery that have been made there in modern times.

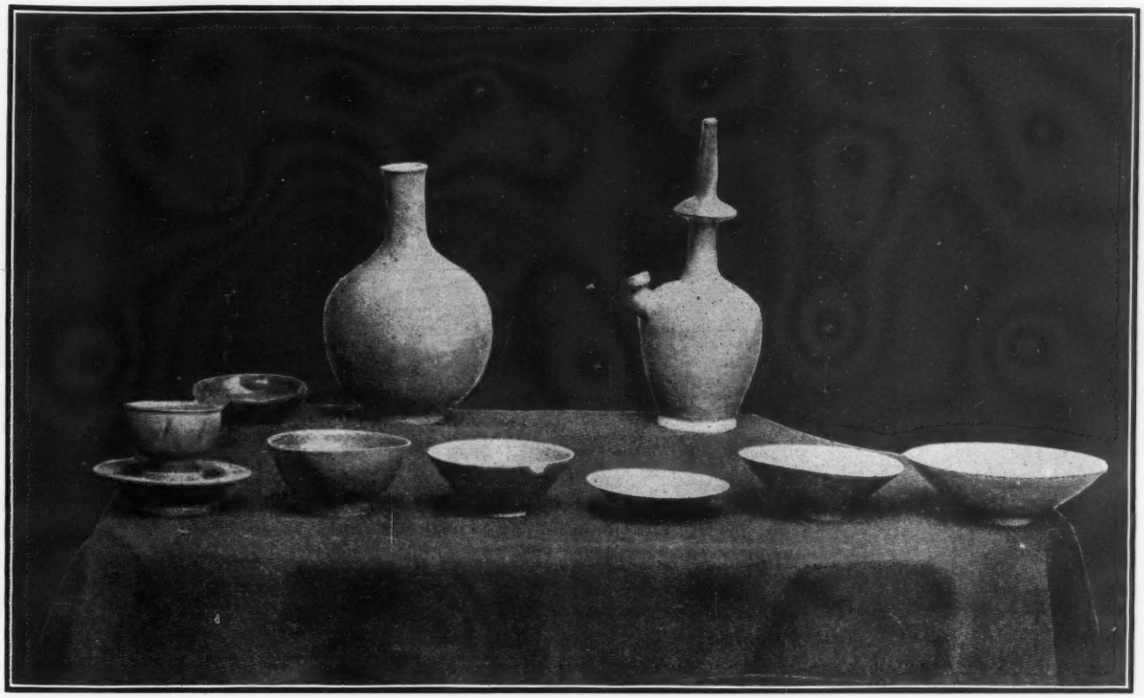
It is true that the pottery manufactured even at the present day in Korea has certain points of resemblance in common with her products of bygone centuries; and yet it seems proper, at any rate for the purpose of the student, to separate the subject of Korean keramics into two divisions: the one, dealing with the ancient ware; the other, embracing the pottery made since the Japanese invasion.

Unfortunately the art has deteriorated, and while the older forms may still serve as the basis of the modern products, the latter are not to be compared with the fine specimens obtained from ancient Korean tombs, or with still more beautiful pieces which were doubtless regarded as too choice to be entombed, and were fortunately preserved for the delight of future generations.

Korea has been described as one vast graveyard, with burial mounds and monuments of varying age and archaeological interest constituting one of its most prominent landscape features. In some sections of the country cemeteries occupy fully one-fourth as much space as that used for agricultural purposes. Isolated graves of persons of special prominence are also not uncommon, and these are generally surrounded by groves of evergreens, arranged in the shape of a horse-shoe, with the mound, from four to five feet high, in the center. Here in these groves have lain for centuries numerous examples of the ancient Korean's best art in pottery. Here from time immemorial they had been placed with the bodies, in the belief that the spirits of the departed would have need of them. Other articles were buried with the pottery, such as gilded rings of copper, bronze horse-trappings, and objects of stone, including arrowheads made of slate, and daggers of slate or shale with the handle and blade in one piece.

KOREAN MORTUARY POTTERY

Much of the early pottery was unglazed, while some was slightly glazed (*vernis*) earthenware of archaic shape. The pieces were either modeled by hand, patted into shape by the



KOREAN POTTERY AFTER KORIN PERIOD

use of an instrument for that purpose, or formed by the potter's wheel.

And here it may be remarked that Korea was the birthplace of the potter's wheel, which, as described by Mr. Jouy, consists of a circular table from two to three feet in diameter and four to six inches thick, made of heavy wood, so as to aid in giving impetus to it when revolving. In general appearance it is not very unlike a modeler's table. This arrangement is sunken into a depression in the ground, and revolves easily by means of small wheels working on a track underneath, the table being pivoted in the center. The wheel is operated directly by the foot, without the aid of a treadle of any kind. The potter sits, squatting in front of the wheel, his bench or seat on a level with it, and space being left between his seat and the wheel to facilitate his movements. With his left foot underneath him, he extends his right foot and strikes the side of the wheel with the bare sole of the foot, causing it to revolve.

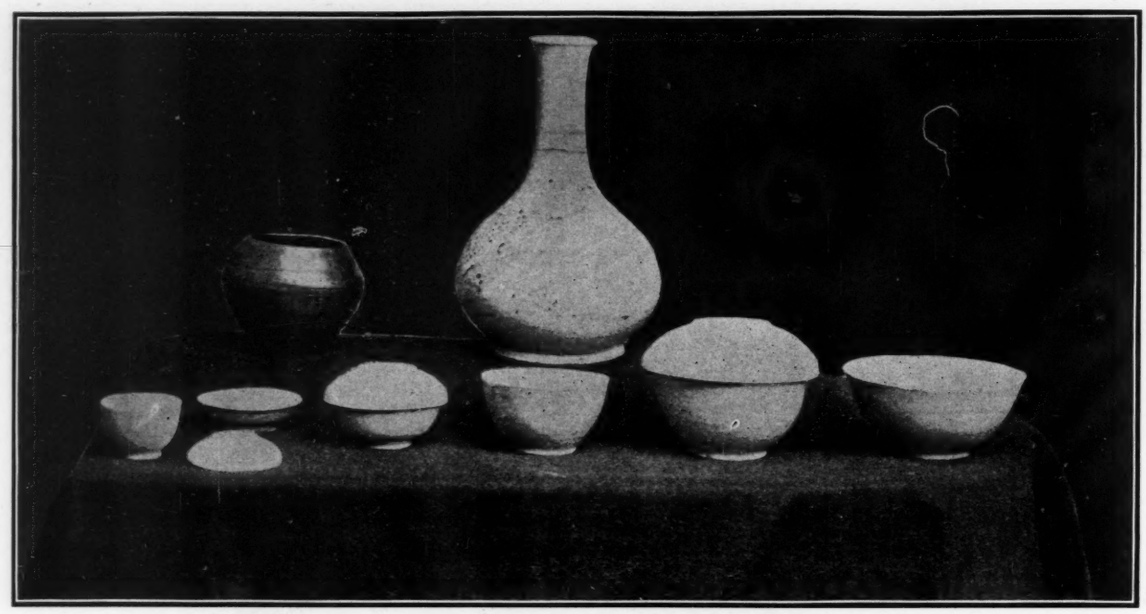
The existence of any special principles of decoration or of symbols peculiar to Korean art has not yet been fully worked out. There are, however, certain art-*motifs* which often occur on Korean wares. Chief among them is the wave-pattern, which resembles the effect produced by overlapping the ends of feathers. The autumn leaf, floating on the stream, and the half-submerged flower also convey expressive sentiments in Korean art. Arabesque lines that break up the general decoration by means of flat fillets or curved flutings, too, are prominent forms of decoration. Such lines are composed of fruit or flowers, especially the peony. The chrysanthemum design, too, is Korean, and so is the shark's tooth, which is used chiefly on vases where the sphere-shaped surface requires a broad base and sharp slope to a point.

A close examination of ancient Korean bowls, vases, trenchers, etc., discloses very graceful forms and chaste decorations, including the Swastika, or Buddhist cross, the dotted diamond, the wave pattern, etc.

The collection of pottery objects already alluded to as having been obtained from Korean graves, may be taken as typical of the ancient productions of the country. There is a stone-ware dish made of dark grey paste and shaped like a shallow saucer, with a low foot; a wine bottle of light yellowish, granular paste, with an opalescent coating showing yellow spots and dark brown pits, and another one of heavy terra cotta ware, covered with vitreous cracked enamel of a beautiful greenish-grey tint. Near the top of the body, which is jug-shaped, there is a short spout. This bottle is an obsolete form of about the twelfth century. An illustration of it and the other pieces described is shown in the second picture. Such specimens are of equal value with real porcelain, and are of special interest in that they hint at the origin of the celebrated Japanese Satsuma ware. A specimen of ancient earthenware is seen in the wine cup and stand at the extreme left of the same illustration. These pieces are rudely glazed. The cup is shaped to represent a lotus. There are also several bowls of hard, opaque paste, covered with a thick, vitreous, green crackled glaze. The one on the extreme right is of fine, white, hard-paste porcelain, and is ornamented with the wave or cloud pattern on the inside. This is produced by scraping away the paste, the indentations being filled in with a thicker layer of glaze. This ware, which came from the old potteries at Song-do, is exceedingly rare.

The third picture shows some modern pieces of pottery, such as a globular bowl (Jil-tang-quan) of dark red stoneware, glazed on the side which was subjected to the greater heat. Next to it is a wine bottle of heavy glazed porcelain (Sul-biung), ornamented with the dragon design in blue, and in this connection it is important to note that the Korean potters were unable to impart any color but blue to their white ware until the revival of color decoration—some two or three decades ago.

The objects in the lower line of this picture make up what might be termed a Korean dinner service, including saucers

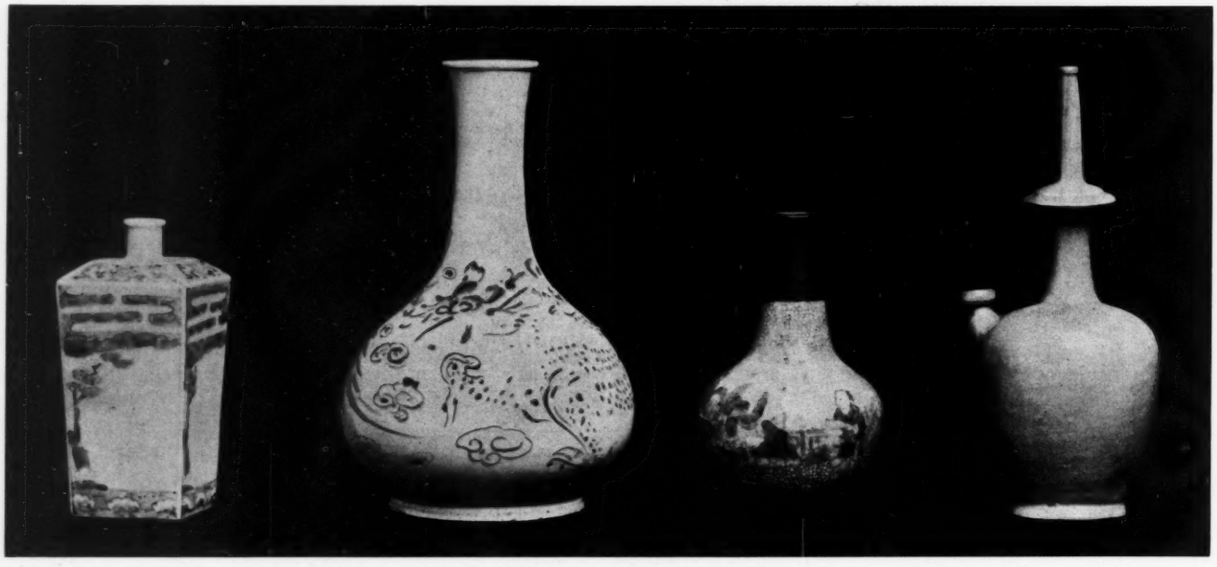


KOREAN POTTERY

and bowls for holding fish, vegetables, etc., and bowls for rice, stew and water. They are all of a heavy porcelain,covered with a patchy glaze of greenish hue.

The pottery in common use in Korea at the present time may be briefly described as consisting of three kinds. The finest is of white, pale buff, or bluish porcelain, sometimes decorated in blue and with a high glaze. This consists of dishes, bowls and bottles for table use, and also wash-basins. The second quality is a pale-yellow ware, glazed, and chiefly made up as bowls, undecorated, and used by the middle class.

The third kind, which is used by the poorer classes, is made of dark brown or reddish earth, glazed inside and outside. It has little or no decoration except a wavy line produced by wiping off the glaze, which permits the lighter undersurface to show through.



MODERN KOREAN POTTERY

BRACELET SYMBOLIZING BRITISH FEDERATION

In their search for novelties, enterprising jewelers have not hesitated to take their models from the animal and the bird kingdoms, to say nothing of bending their energies to very realistic reproductions of tiny reptiles, beetles, butterflies, etc., in glittering gold and gleaming jewels. That these specimens of the jeweler's skill have any claim to consideration on the ground of artistic merit few would be willing to admit, but there is a demand for grotesque; eccentric ornaments and gem studded birds, dogs, horses, rabbits, bugs and reptiles are seen in the jewelers' shops side by side with the most exquisite examples of l'art nouveau or reproductions of designs that have stood the test of centuries.

Animal jewelry in simple and elaborate guise receives particular attention in England and the latest ornament of this character is the gold bracelet called the Empire, the pendants attached to the circle of golden links are designed as symbols of the British federation, with a portrait of King Edward VII in the center. The lion stands for Great Britain; kangaroo, Australia; sheep, New Zealand; beaver, Canada; elephant, India; ostrich, South Africa.

The Florida Indians molded their pottery on gourds and covered them with baskets of reeds to support them until baked. The aboriginal potters mixed pulverized stone, shells, or other mineral substance with their clay to prevent cracking. Some of the Missouri Indians used a black clay which was so tough that they could hang their vessels over the fire as the white man did his iron pot. Some of the better work of the Indians was what is called coil-work, that is, molded over a base of wicker work by coiling the clay round and round until the vessel is complete. This is the nearest approach to a potter's wheel known to have existed among the aborigines.

CONVENTIONAL DOLPHIN DESIGN—MRS. YOUNG

Dark Green background shading into lighter tones in shaded part. Dolphin, shells, etc., Gold with Black or Dark Green markings. Turquoise Blue in dotted spaces. It might also be done with Black Lustre, Silver and Pale Green in dotted spaces.

WILD LILAC—MRS. K. E. CHERRY

FIRST fire for flowers—Sea Green, Deep Blue Green and Violet. These flowers are more of a turquoise blue than the violet coloring as the cultivated lilacs usually are. Leaves are a dark grey green, using Shading Green and Black, Moss Green and Violet

Second fire—Flowers, wash Deep Blue Green in lights, a thin wash; Violet and Shading Green in shadows, accent with Deep Blue Green and Black.

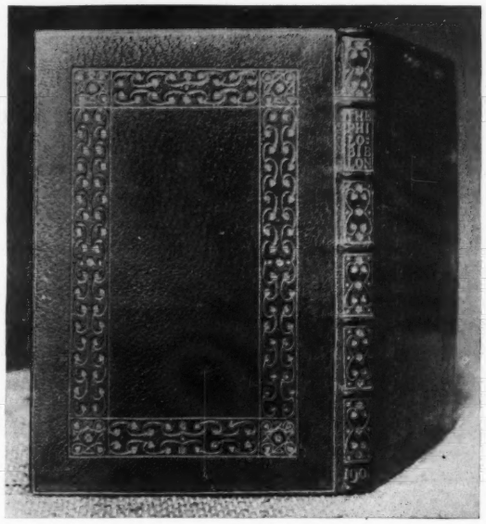
Leaves, Apple Green in lights, Moss and Black for shadows and dark touches.

Background—Use same coloring as in the flowers and touches of Yellow for the light tinting.

THE CRAFTS

WOOD CARVING AND PYROGRAPHY. LEATHER AND METAL. BASKETRY, ETC.

Under the management of Miss Emily Peacock, 6 Brevoort Place, Brooklyn, N. Y. All inquiries in regard to the various Crafts are to be sent to the above address, but will be answered in the magazine under this head.

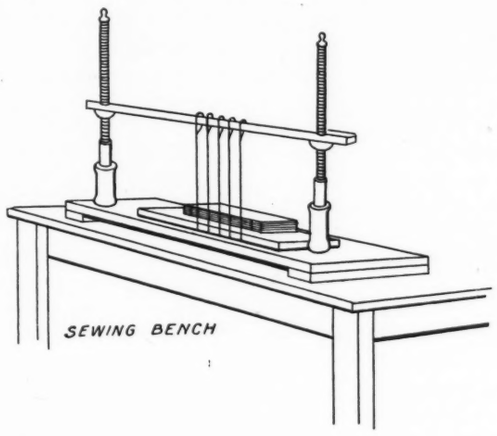


Bound by Helen G. Haskell.

HAND BOOK BINDING

Helen G. Haskell

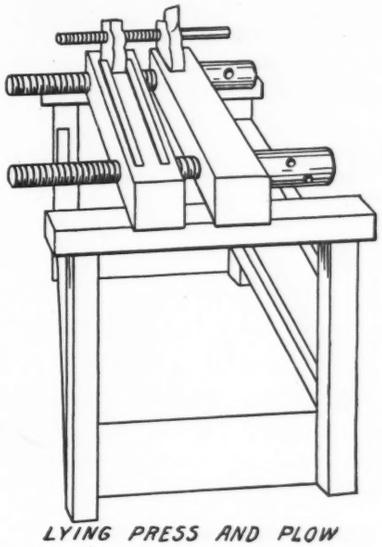
BOOK-binding is a craft which cannot be well learned from a book. It necessitates object teaching, and that over and over again: line upon line; precept upon precept. The more than forty processes follow each other in such logical sequence that the interest and fascination in the work is kept up from beginning to end. Yet it is difficult to remember just when one does each process and uses the different tools, and laughable and sometimes tragic blunders are made. But an experienced teacher usually has some way out of the difficulty and the pupil goes on with added cheer, finding that each finished book means steady progress.



SEWING BENCH

People often think that sewing is the first thing to do in binding a book. But first they learn the rather long and often tedious process of taking the book apart, cleaning off the glue, mending the leaves, re-folding, registering and cutting the head by hand before the book is "knocked up" at the head and tail and put in press for twenty-four hours. While waiting for the pressing the blank end papers are cut from strong, hand made paper folded with proper hinges and tipped with waste paper which will keep the leaves clean while the book is being bound. The conventional number of bands on the back of a book is five. The book is taken from the press and placed with its back up in a small finishing press and these five bands marked on it at equal distances, the tail being left a little longer than the other spaces, and the kettle stitches sawed half an inch from either end.

The sewing bench is set up with five cords spaced to correspond with the markings on the book and at last the book is ready to be sewed. Each section is sewed with silk around each of the five cords and fastened at the end with the "kettle stitch." A book sewed in this way cannot come apart so long as silk and paper last and the cords against which it is sewed become a part of the decoration of the book in the bands



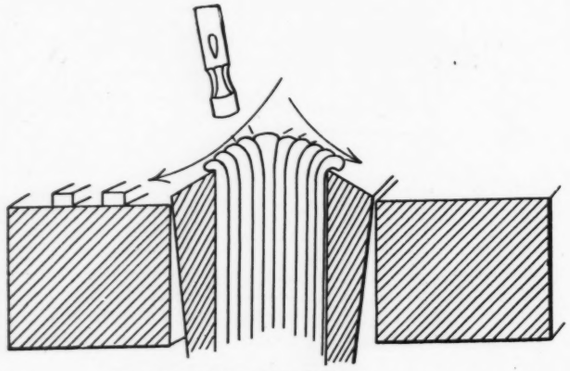
LYING PRESS AND PLOW

across the back over which the leather is stretched in covering. When the book is taken out of the sewing bench it should be collated so as to be sure that each leaf is sewed into its proper place.

The book is now beaten to make it solid, the cords cut about three inches long and frayed out very fine: and it is ready for backing. This is perhaps the most important process of the work, for, on the evenness of the turned joints and the rounding hang the whole style of the book. It is put into a small press and the back covered with a thin glue to keep the hammer from tearing the leaves when rounding. This glue is well rubbed in and left to dry, the backing boards are placed on each side, the depth of the joint below the back and the back rounded from the centre and polished. Much practice and skill is necessary to make the back firm and round. The English use a flatter back than the French do, but the process is the same.

The covers receive attention next. They are cut from millboard a little larger than the book and three pieces of paper pasted on them, the side having two pieces going next to the

book to counteract the pull of the leather when covered. When dry these boards are cut to the size of the book with the plow in the lying press. This plowing of the board leaves a polished edge all around. Two rows of holes are punched in each board to correspond to the bands on the book and through these holes are laced and pounded the cords making the book and its covers one. With the heavy English cord used it is almost impossible for the covers to ever come off. With tins on either side of the covers the book is pressed and takes its permanent shape. The glue is scraped off the back with flour paste and a wooden stick and then the book is ready for its most difficult process—the cutting of head, tail and fore-edge. These are cut in the lying press with the plow. The head and tail are cut a little smaller than the boards and without much difficulty. For the fore-edge trindles are put in to straighten the back for the time, boards are placed on either side of the book and then it is put into the press so that everything is even before it can be cut. If the book slips a hair's breadth the fore-edge will be cut unevenly. Now the book goes to the gilder to have the edges gilded. Valuable books are cut by hand all the way around and gilded before being sewed and this is called rough gilt. The head bands either single or double are woven of silk over parchment firmly into either end and set there with glue and paper. The corners of the covers next these head bands are cut off, the five cords lacing the covers on are cleaned and re-set, the bands on the back nipped up well and the book is forwarded and ready to be covered with leather and finished.



BACKING A BOOK

For this kind of binding only the best Levant Moroccos and pig-skin are used. First books are bound in leather back and corners, with paper sides. Books to be decorated are bound in full leather. The leather is cut the size of the book with a margin all around. This margin and the middle of the back are pared thin with a broad knife. The covering of books is almost a craft by itself. It takes much skill to make sharp even bands on the back, to model the corners and to make the hoods over the headbands. The leather is wet, thoroughly pasted and then put on the book. Band nippers are used to make the leather stretch over the bands and much patient rubbing with band sticks is done to polish the back. The book is put away to dry until the next day when it is carefully opened up so that the covers will open back and touch. When the leather has dried open, the corners are cut and finished, the turnover inside cut even all around and paper filled in. The leather on the covers is now crushed in the press and then the book is ready for decorating, the goal towards which the binder looks most eagerly all through his work.

Simple and conventional designs should be used in "finishing" books. Easel pictures or flower painting in mosaic and gold are in the worst possible taste, even though the workmanship may be marvelous. Few tools and those combined according to the best rules of design, are good principles on which to work. There are three kinds of decoration "Blind tooling," "Gold tooling," and "Mosaic." For all of these the design is first made on strong paper; the tools are heated and the first impression made on the leather by pressing them through the paper. These impressions are deepened by wetting the leather and pressing the warm tools in a second time. For "blind tooling" the polish is given by going over the design a third time with the hot tools oiled. For "gold tooling" the leather is prepared with vinegar, glaire, palm oil and gold leaf, the hot tools are pressed into their places again and the loose gold is taken off with a rubber. In the "mosaic" decoration parts of the design are cut from thin, contrasting leathers, fixed into their places on the book and tooled over with gold. There is no limit to the time one may put on a well loved book and the fascination and pleasure in the work grows on one as the years go by. When decorated the leather is varnished, the end papers pasted back, the book opened leaf by leaf and then pressed to make sure that it will open and close properly.

It takes a long time to learn how to bind books worthy of decoration, but this only proves the dignity and worth of the craft. Patience, the love of books and, incidentally, a sense of humor are necessary virtues in a good binder.

The presses and tools for a binding plant can be purchased for about $75.00, and then one can add indefinitely to one's finishing tools as taste and purse may dictate. Instruction in binding is usually given in private studios, but there are two schools which have made it one of their departments and where tuition is practically nominal: The Art School, Norwich, Conn., and the School of Industrial Arts, Trenton, N. J.

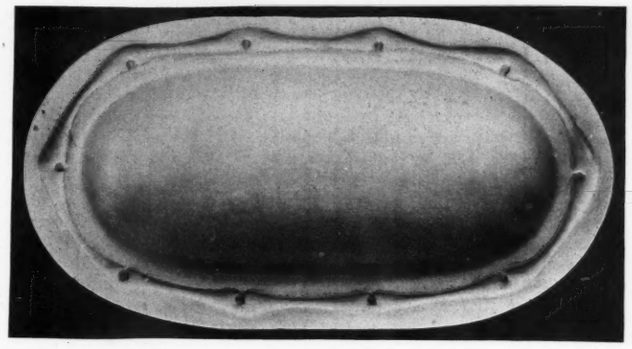
T, J. Cobden-Sanderson, of London, is the best binder of the day and several of his pupils are teaching in this country. It is only eight years since women took up this craft, but the work of these years has proved that it is a work quite as suitable for them as for men, and several of them stand on equal footing in the book-binding world.

TALKS, TEA AND THINGS

A SERIES of talks and an interesting exhibition of handwork in various branches took place at the Ridge Club House, Bay Ridge, N. Y., from May 3d to 6th.

On May 3d Miss Averill told about Japanese flower arrangment and showed a charming arrangment of a flowering shrub. May 4th, Mrs, E. D. Sawyer read a paper on Household Decoration. May 5th, Mrs. Victor Shinn exhibited her hand loom, assisted by Mrs. Anna Emberg who showed a wonderful collection of hand woven textiles. May 6th, Miss Mary White told of baskets from many lands, illustrating her talk with interesting and rare specimens loaned by Mr. Frank Covert.

As an outcome of the talks and exhibition an interest has been awakened in Bay Ridge and piazza classes formed to study certain of the crafts through the summer months. The exhibition showed some interesting work from various artists and craft workers:—Baskets and bead work by Miss Mary White; designs for table covers and plate doilies for summer cottages by Mrs. E. D. Sawyer; burnt wood by Miss Lulu Githens; metal work and jewelry by Miss Emily Peacock; childrens' book plates by Gardner C. Teall; Portrait sketches of children by Chas. Buchanan; dyed stuffs and bead weaving on cloth by Miss Sara Pierce White and hand woven Pilgrim rugs from Pittsfield, Mass.



SILVER SPOON DISH

THE low silver spoon dish is made from a piece of silver 5 inches x 9¼ inches, 20 gauge. After cutting the oval shape very carefully and correctly, make a line just one inch from the outside edge, this line is the guide from where the bowl part is to be beaten. Make a pattern from a 3 or 4 inch block of wood (see November number, page 165) like profile Fig. 1.

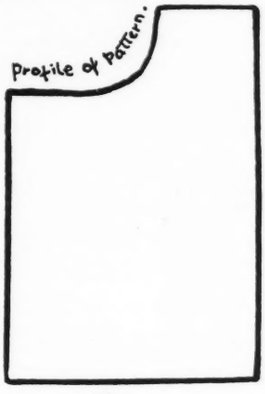


Fig 1.

Anneal the silver and begin to hammer with a good sized hammer (Fig. 2), holding the silver firmly against the block and slowly moving it all the time. Always anneal the silver when it begins to feel hard and proceed with the hammering until the bowl part is well shaped and deep enough. If the rim is not perfectly flat make it so by hammering it with a rawhide hammer on the anvil.

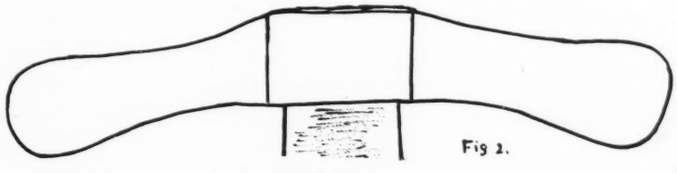


Fig 2.

Put the design (Fig. 3) on the under side of the rim with a steel point. Fill the bowl with pitch and turn this on the pitch ball.

Outline all the lines in the design with a tracer and then repoussé with suitable tools. Take the dish off the cement or pitch and put it back on the other side, then work down the background with a flat planisher next to the design and a round one afterwards. After this is done satisfactorily, soften down with emery cloth of different grades, beginning with medium, and finishing with very fine. Solder on the bottom of the dish four silver balls for feet, this process will be less difficult if a small cage of wire is made and put on each ball, leaving enough wire from each cage to go round the dish, so that the balls can be fastened securely in place. Polish the dish with pumice and water then use tripoli to finish.

ANSWERS TO INQUIRIES

Mrs. W.—If your ring is to be joined in the back a bevelled joint is better and stronger than a straight one. Bevel carefully under one edge, and over the other, and bring them together so that there is the same thickness all round the ring.

L. M.—There are many kinds of silver solder, if you are doing a large piece of work, I should advise you to get three kinds, very hard, hard, and soft. Begin with the hardest, so that when you use the next degree the first will not be liable to melt. Clean, freshly ground borax is about the most reliable of the fluxes.

U. Johnson.—You can get French plate glass, bevelled and cut any shape and size from the manufacturer, E. P. Birnbaum, 40 Dey Street, New York.

Mrs. R. T.—We will give an article on stenciling very soon, and are sure that you will get some inspiration for your portieres from it.

R. O.—A copper box is quite a difficult thing to make well. Each part must be quite true, and the edges very well scraped before you solder. Soft solder can be used for a purpose of this kind. Why couldn't you lap each seam, and rivet them with copper rivets. If you do not want to make the hinges, buy brass ones, have them heavily copper plated and rivet these on in the same way.

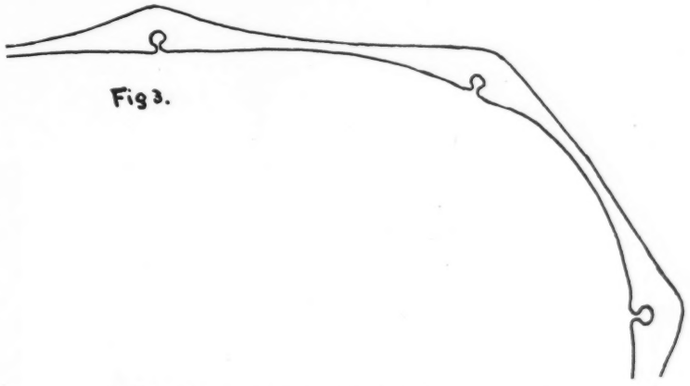
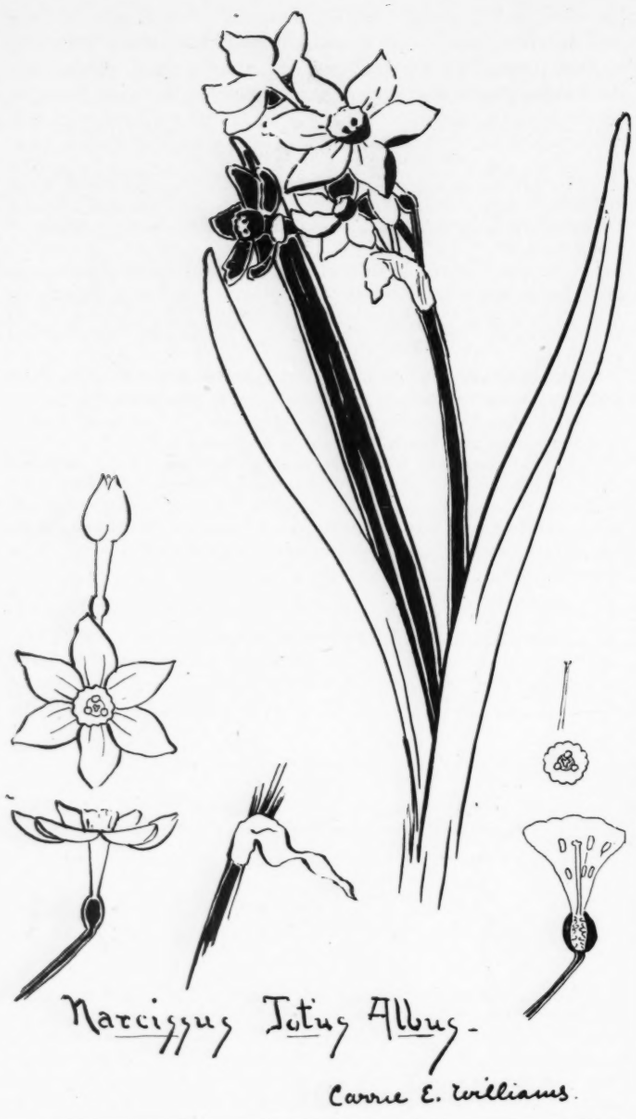


Fig 3.

Raffia.—The slender roots of the tree Yucca are sometimes used for the red figures in the baskets of the Panamint Indians of Tuyo County, Cal. These Indians also use extensively the small branches of the three leaf Sumac, in the manufacture of their baskets. For warp the peeled branches are used For weft and for the sewing material of coiled baskets the branch is usually split into three strips and the bark and the brittle tissue next the pith removed leaving a flat tough strand.

CANDLESTICK

THIS delightfully simple candlestick is an expression of modern German art and was kindly lent to us for reproduction by Mr. W. T. Bush of Brooklyn. It is made of thin sheet-iron in three pieces, one piece for the bottom, one for the socket for the candle and one for the handle, a part of this also holds the socket. Four iron balls riveted to the bottom part of the candlestick, supply the feet.



ANSWERS TO CORRESPONDENTS.

This column is only for subscribers whose names appear upon our list. Please do not send stamped envelopes for reply. The editors can answer questions only in this column.

All questions to be answered in the Magazine must be received before the 10th day of the month preceding issue.

A. A. L.—We never have repaired any of the English china you mention, we have always found Sartorius cement satisfactory for what work we have done, but if your ware, as you say, absorbs it and will not stick together we would advise letting it absorb as much as it will and then use a very little Aufsetzweis in tubes to help stick the pieces together and until it can be tied with your asbestos cord. Flux would not do—it would wear out. Dishes that turn dark in the crack can usually be refired hard enough to make the color disappear. Maroon makes a rich dark red when dusted on.

L. M. C.—In using for decoration a coat of arms in which rich red and green are used, we should suggest placing the coat of arms on the rim with gold edge and lines or bands of gold or the red or green stopping either side of shield. We doubt if you could have a transfer made in this country, you might write to Palm & Fechteler whose ad will be found in the advertising columns. You will probably have to transfer the outlines with a pencil and fill in with color. Plates well executed in this style should be worth $3.00 to $4.00 each, possibly $5.00.

W. C. C.—The cause of the fine white spots appearing on your painted piece of china is difficult to decide without seeing. It might be that it came from moisture in the kiln or from spatterings of alcohol before firing. Possibly, however, it comes from some imperfection in the glaze of the china, this is the more likely explanation.

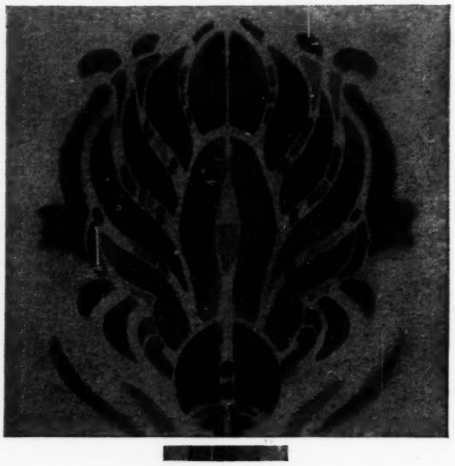
D. N. B.—We should judge that the cause of blistering on your bowl was due to too much oil or color in some places. You never can tell when these will blister, some times a thick or oily color will come out all right but usually when the firing is too rapid more blisters appear than when the firing is slower. The strength of the firing would not do it. In America more china is underfired than overfired. We do not think you fired too hard. When once a piece begins to blister, it is impossible to say when it will stop.


ABR
1887

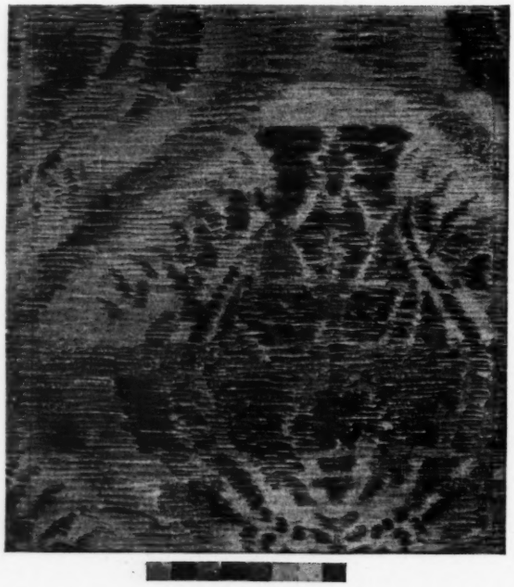
YO L ½ G LL RO LL

G LL YO L ½

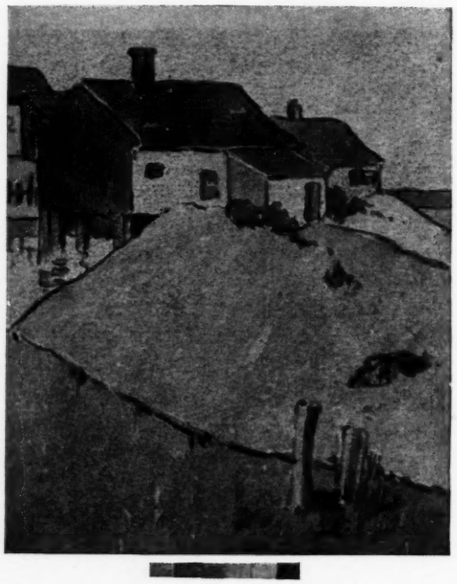
RO M RV M ½ R LD V LD ½ R M G LL ½ O L ½



RO M V LD ½ R M G LL ½ O L ½



V L ½ B LD G L ½ G LL ½ R LL R HL ½ YO HL ½ V D ½



G L ½ G LL R LL R HL ½ YO HL ½ V D ½

SOME COLOR SCHEMES AND THEIR APPLICATION—HUGO FROEHLICH

JULY, 1904
SUPPLEMENT TO
KERAMIC STUDIO

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